

REMARKS

In the present amendment, Applicants have canceled claims 2, 3, 5-12, and 14 without prejudice to or disclaimer of the subject matter recited therein. The Office withdrew claims 3 and 5-9 from consideration as being drawn to a non-elected invention. Office Action at page 2, item no. 2. Solely to expedite prosecution and without acquiescing to the Office's contentions, Applicants canceled claims 2, 10-12, and 14. Applicants expressly reserve the right to pursue subject matter of those claims in one or more divisional and/or continuation applications at a future time. Claims 1, 4, and 13 are pending and under consideration.

Solely to expedite prosecution and without acquiescing to the Office's contentions, Applicants have amended claim 1 to delete the term "substantially" from the phrase "substantially complementary", to specify that "one or more cellulolytic enzyme genes" are from "*Coriolus hirsutus*," and indicate that the host cells are from *Coriolus hirsutus*. Applicants have also amended claim 4 to specify that "the one or more cellulolytic genes is a cellobiohydrolase I gene comprising a nucleotide sequence selected from SEQ ID No. 7, 9, and 11." In addition, Applicants have amended the claims to recite more conventional language. Those amendments add no new matter.

Finally, Applicants have also amended claim 13 to recite "[a] method for producing a pulp comprising: treating woodchips according to the method of claim 1; obtaining the treated woodchips, and using the treated woodchips to produce the pulp." Those amendments change the claim dependency and include additional language that is supported in the specification, for example, at Example 36 at page 59. No new matter has been added.

I. Rejection of Claims 1-2, 4, and 10-14 under 35 U.S.C. § 112, first paragraph

The Office maintained the rejection of claims 1, 2, 4, and 10-14 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. Office Action at page 2, item no. 5. The Office alleged that “[t]he claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.” *Id.* Applicants respectfully traverse the rejection.

Solely to expedite prosecution and without acquiescing to the Office’s contentions, Applicants have canceled claims 2, 10-12 and 14 without prejudice or disclaimer. Accordingly, the rejection is moot with respect to those claims. Applicants respectfully request withdrawal of the rejection of claims 2, 10-12 and 14 under § 112, first paragraph, as allegedly failing to comply with the written description requirement.

The Office stated that Applicants’ previous arguments were considered but were found unpersuasive. Office Action at page 2, item no. 6. The Office contended that

Applicant’s disclosure of 3 forms of cellobiohydrolase I isolated from a single species of Basidiomycetes, namely *Coriolus hirsutus*, is not sufficient to predict the full scope of potential antisense RNA that are ‘*substantially*’ complementary to a cellulolytic enzyme derived from the Basidiomycetes class of fungi. Moreover, it is noted that the metes and bounds of the phrase ‘derived from’ is not adequately described. This phrase may also include cellulolytic enzyme genes comprising additions, deletions, and various mutations, wherein the antisense RNA of the invention are substantially complementary to a transcription product of these sequences. It is clear that further experimentation would be required to fully identify the full scope of the claimed antisense RNA used in the methods of the claimed invention.

Id. at page 3, item no. 8.

Applicants respectfully traverse the rejection. Solely to expedite prosecution and without acquiescing to the Office’s contentions, Applicants have amended claim 1 to delete the terms

“substantially” complementary” and “derived” from. Accordingly, the Office’s contentions concerning that language are moot.

In addition, claim 1 now recites “antisense RNA complementary to the whole or a part of a transcription product of one or more cellulolytic enzyme genes from *Coriolus hirsutus*” and “the host cells are *Coriolus hirsutus*.” The specification discloses the actual reduction to practice of at least a representative number of species, and in addition, provides disclosure of relevant, identifying characteristics, “sufficient to show the applicant was in possession of the claimed genus” at the time the application was filed. Specifically, the specification discloses certain exemplary cellobiohydrolase I genes from *Coriolus hirsutus*, along with certain physicochemical properties of cellobiose dehydrogenase protein encoded by cellobiohydrolase I genes used in the methods of the claims.

For example, certain exemplary cellobiohydrolase I genes from *Coriolus hirsutus* are provided by SEQ ID NOs.: 7, 9, and 11 thereby providing specific structure. In addition, the specification provides a detailed description of certain physicochemical properties of a protein encoded by a cellobiohydrolase I gene from *Coriolus hirsutus* used in the methods of the claims. Specification at pages 29-31. *See also* Response to Office Action dated July 23, 2007 at pages 5-6.

Moreover, the specification describes at least a representative number of DNA encoding an antisense RNA complementary to the whole or a part of a transcription product of a cellulolytic I gene from *Coriolus hirsutus*. For example, Examples 14-16 at pages 45-46 of the specification describe the construction of three different plasmids, each having a different antisense sequence of cellobiohydrolase I gene from *Coriolus hirsutus*. The antisense sequence in each of the examples was approximately 750-bp, *id.*, clearly indicating that the inventors had

reduced to practice at least a representative number of antisense sequences substantially complementary to a part of a transcription product of cellobiohydrolase I.

In addition, as noted in the Response to Office Action dated July 23, 2007, at pages 6-7, the level of skill and knowledge in the art of antisense RNA was high at the time the application was filed. Accordingly, based on the description in the specification coupled with the high level of skill and knowledge in the art of antisense RNA, one skilled in the art would reasonably conclude that, at the time the application was filed, the inventors had reduced to practice at least a representative number of DNA encoding an antisense RNA complementary to the whole or a part of a transcription product of a cellulolytic gene from *Coriolus hirsutus*, and therefore, were in possession of the claimed genus.

Furthermore, in addition to describing at least a representative number of DNA encoding an antisense RNA complementary to the whole or a part of a transcription product of a cellulolytic gene from *Coriolus hirsutus*, the specification also describes preparing at least a representative number of vectors comprising DNA, transforming host cells, including *Coriolus hirsutus* host cells, with vectors, and *Coriolus hirsutus* host cells having suppressed cellulolytic enzyme activity, e.g., cellobiohydrolase I enzyme activity, according to the claimed methods. The specification teaches vectors and the preparation of vectors comprising DNA encoding an antisense RNA, for example, at page 26 and Examples 14-16. The specification teaches *Coriolus hirsutus* host cells and transforming host cells with vectors, for example, at pages 26-27 and Examples 29, 34, and 39. The specification teaches *Coriolus hirsutus* host cells having suppressed cellobiohydrolase I enzyme activity, for example, at pages 26-27 and Examples 29, 34, and 39. Accordingly, the specification provides an ample description of at least a representative number of species and, therefore, one skilled in the art would reasonably conclude

that the inventors had possession of the claimed genus of claim 1 at the time the application was filed.

Claim 4 depends from claim 1 and further specifies that “the one or more cellulolytic genes is a cellobiohydrolase I gene is comprising a nucleotide sequence selected from SEQ ID No. 7, 9, and 11.” The Office previously acknowledged that “[t]he specification as filed provides sufficient description for the skilled artisan to predict the structures of antisense constructs that produce an antisense RNA hav[ing] a sequence that is fully complementary to SEQ ID NO: 7, 9, or 11, wherein the antisense RNA is effective for suppressing the enzyme activity of cellobiohydrolase 1 gene, having a sequence according to SEQ ID NO: 7, 9 or 11.” Office Action mailed on May 3, 2007, at page 4. Accordingly, the Office has acknowledged that the specification supports the scope of claim 4. Claim 13 depends from claim 1 and is fully supported by the specification for at least the reasons discussed above.

Accordingly, the specification supports the full scope of claims 1, 4, and 13. As noted above, claims 2, 10-12, and 14 have been canceled without prejudice or disclaimer and therefore, the rejection is moot with respect to those claims. Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 4, and 13 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement.

II. Rejection of Claims 12-14 under 35 U.S.C. § 102(b).

The Office maintained the rejection of claims 12-14 under 35 U.S.C. § 102(b) as allegedly being anticipated by Chen et al. (Chen, *Wood and Fiber Science*, 27(2):198-204, 1995; “Chen”). Office Action at page 5, item no. 9. Applicants respectfully traverse that rejection.

The Office contends that claims 12 and 14 are product by process claims. The Office further contends that since Chen “discloses wood chips, wherein these wood chips are treated

with the Basidiomycete *P. chrysosporium* to produce pulp, absent evidence to the contrary the wood chips and pulp disclosed in Chen et al. meet the limitations of the instant claims, although they were produced by a different method.” *Id.* at item no. 11.

Solely to expedite prosecution and without acquiescing to the Office’s contentions, Applicants have canceled claims 12 and 14. Accordingly, the rejection is moot with respect to those claims. Applicants respectfully request withdrawal of the rejection of claims of 12 and 14 under § 102(b) as allegedly anticipated by Chen.

Regarding claim 13, Applicants respectfully note that the Office’s contentions concerning product by process claims are inapplicable to claim 13, which is a method claim. Claim 13 recites “[a] method for producing a pulp comprising: treating woodchips according to the method of claim 1; obtaining the treated woodchips, and using the treated woodchips to produce the pulp.” Applicants note that claim 13 includes “treating woodchips according to the method of claim 1.” Nowhere does Chen discuss treating woodchips according to the method of claim 1, which includes, among other elements, “preparing a DNA encoding an antisense RNA complementary to the whole or a part of a transcription product of one or more cellulolytic genes from *Coriolus hirsutus*.” Thus, Chen does not teach each and every element of claim 13, and accordingly, for at least that reason, Chen does not anticipate claim 13. As discussed above, Applicants have canceled claims 12 and 14 without prejudice or disclaimer and therefore, the rejection is moot with respect to those claims. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 12-14 under 35 U.S.C. § 102(b) as allegedly being anticipated by Chen.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants assert that claims 1, 4, and 13 of this the application are in condition for allowance. Applicants respectfully request reconsideration of the application, withdrawal of all the rejections, and the timely issuance of a Notice of Allowance. If the Examiner does not consider the claims allowable, the undersigned requests that, prior to taking action, the Examiner call her at (650) 849-6607 to set up an interview.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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